Palaeobio Palaeoenv
DOI 10.1007/s12549-017-0291-2

SENCKENBERG



ORIGINAL PAPER

# An early Emsian (Zlichovian) ammonoid assemblage from Sangibaland Mountain (Shakhimardan River Basin) (South Tien Shan, Kyrgyzstan)

**Svetlana Nikolaeva** [1,2,3] · **Aleksey Kim** [4] · **Maya Erina** [4]

Received: 27 September 2016 / Revised: 4 May 2017 / Accepted: 29 May 2017


**Abstract** Early Emsian (Zlichovian) ammonoids are recorded from a section of neritic deposits on the western and northwestern slopes of Sangibaland Mountain (right bank of the Shakhimardan River, near the village of Jiydelik, South Fergana, South Tien Shan, Kyrgyzstan) including other faunas such as conodonts, dacryoconarids, brachiopods, trilobites, and corals. The ammonoid fauna includes *Erbenoceras* cf. *solitarium* (Barrande, 1865), *E. kimi* Bogoslovsky, 1980 and new species of teicherticeratids. This combination of taxa allows the host beds to be correlated with the Zlichovian LDIII Zone. Ammonoids come from the Katran Formation, from beds previously recognised as the Sandal Formation, which is well–known for its neritic assemblages, interpreted as inhabitants of shallow shelf zones in the northern regions of the Paleozoic Alai–Tarim Terrane. Near the end of the Zlichovian, when the Dalejan transgression spread to the Sangibaland Region, ammonoids colonised the neritic basin near a carbonate platform, already inhabited by abundant benthic fauna. The co-occurrence of neritic and pelagic organisms is a useful feature providing a basis for the correlation between the pelagic and neritic successions of the lower Emsian (Zlichovian).

**Keywords** Ammonoids · Devonian · Emsian · Zlichovian · South Tien Shan

This article is a contribution to the special issue "Climate change and biodiversity patterns in the mid-Palaeozoic"

✉ Svetlana Nikolaeva
sven@nhm.ac.uk

Aleksey Kim
alekskim@ars-inform.uz

[1] Natural History Museum, London SW7 5BD, UK

[2] Borissiak Paleontological Institute, Profsoyuznaya 123, Moscow, Russia

[3] Kazan Federal University, Kremlyovskaya ul. 18, Kazan 420000, Russia

[4] Eastern Uzbekistan Geological Mapping Expedition, State Committee of the Republic of Uzbekistan on Geology and Mineral Resources, Eshonguzar, Zangiatinskiy Raion, Tashkent Region, Uzbekistan 111800

## Introduction

The correlation of the Devonian neritic and hemipelagic facies with deep-water carbonates is a challenging task, required for calibrating and correlating zonal schemes based on benthic and pelagic fossils. This is particularly pertinent for the Pragian–Emsian boundary beds, which are currently a focus of attention due to calls for a new definition of the Pragian–Emsian boundary (e.g. Walliser 1997; Chlupáč and Lukes 1999; Jansen et al. 2007; Jansen 2012; Carls and Valenzuela-Ríos 2007; Carls et al. 2008, 2009; De Baets et al. 2009, 2010, 2013a, b; Becker et al. 2010; Baranov et al. 2014; Aboussalam et al. 2015). A new basal Emsian biostratigraphic index is sought in the Kitab area, at a higher level than the current Global Boundary Stratotype Section and Point (GSSP) defined by the FAD of the conodont *Eocostapolygnathus kitabicus* (Yolkin et al., 1998) and is likely to be at the level of the FAD of *Eocostapolygnathus excavatus* (Izokh et al., 2011) or of its "subspecies/morphotype 114" (sensu Carls and Valenzuela-Ríos 2002). In this paper, the Emsian is used in the current Zinzilban GSSP definition, which is not identical to the German traditional use or to the Zlichovian. Large parts of the Pragian are stratigraphically the same as the lower part of the GSSP Emsian and Kitabian; and therefore, additional connotations, such as "traditional Pragian of Bohemia," are used to avoid confusion.

Published online: 29 July 2017